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Electrocatalytic oxidation and flow-injection determination of ascorbic acid at a graphite electrode modified with a polyaniline film containing electrodeposited palladium

Shaidarova L., Gedmina A., Chelnokova I., Budnikov G.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

A method for forming a composite film on the surface of a graphite electrode is proposed. Conditions for detecting the maximum catalytic current under batch and flow conditions are determined. A procedure for the electrocatalytic determination of ascorbic acid at the graphite electrode modified with a polyaniline film containing palladium particles is proposed. The catalytic effect of this electrode manifests itself by a ~300-mV decrease in the peak potential of ascorbic acid oxidation and by a multiple increase in the peak current of ascorbic acid oxidation as compared to the unmodified electrode. The linear dependence of the electrocatalytic response of the composite electrode on the concentration of ascorbic acid is observed down to 1 × 10-8 M and 2.5 nmol of ascorbic acid under batch and flow-injection analysis conditions, respectively. © Pleiades Publishing, Inc., 2006.

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